Ali M'manpoosh

Computer Engineering Student
Graduated University of Isfahan
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Education

University of Isfahan — *Isfahan, Iran*
B.Sc. in Computer Engineering — *2020 – 2024*

- GPA: 3.06 / 4.00

Research Interests

Vision–Language 3D scene reasoning, video understanding
LLMs & RAG Retrieval, privacy (local DP), safety
Knowledge Text-to-RDF conversion, knowledge graph construction
Applied NLP Semantic analysis of technical / IoT text

Selected Publications

VAGUE-Gate: A Plug-and-Play Local-Privacy Shield for Retrieval-Augmented Generation

AACL 2025

Arshia Hemmat, Matin Moqadas, **Ali Mamanpoosh**, Amirmasoud Rismanchian, Afsaneh Fatemi — *Accepted – Main Track*

• **Core contributor**: co-ideated VAGUE-Gate and designed the semantic adaptive chunking + RAG pipeline as a plug-and-play ε-LDP privacy gate for existing LLMs
• Built the blended-sensitivity QA dataset **PrivRAG / BlendPriv** and designed figures and experimental setups for privacy–utility evaluation
• Implemented end-to-end comparison code and evaluation for 30+ privacy-preserving RAG variants (e.g., redact, typeholder, ZeroGen with DeepSeek, Qwen, GPT-4o-mini, OpenAI) and computed all leakage/faithfulness metrics across 32 pipeline configurations

From Scenes to Semantics: PersianClevr for Bilingual 3D Visual Reasoning

NeurIPS 2025 Workshop on VLMs for Real-World Data (VLM4RWD)

Kianoosh Vadaei*, Melika Shirian*, Arshia Hemmat*, Mohammad Hassan Heydari, **Ali Mamanpoosh**†, Afsaneh Fatemi — *Accepted*

- **second author & evaluation lead**: designed the metric suite (BLEU, METEOR, ROUGE, LLM-as-a-Judge) and implemented the full evaluation pipeline for bilingual 3D visual reasoning on PersianClevr.
- Authored core figures, tables, and analysis plots that expose zero-shot vs. few-shot failure modes of instructed VLMs across Persian and English, bridging 3D vision and multilingual NLP.

ScenePhys — Controllable Physics Videos for World-Model Evaluation

NeurIPS 2025 Workshop on Evaluation of World Models (EWM)

Arshia Hemmat, Emad Aghahosseini, Alireza Nasri, Mohammad Hossein Shaker Ardakani, Amirmasoud Rismanchian, **Ali Mamanpoosh**, Afsaneh Fatemi — *Published*

• **Dataset & evaluation lead**: created the **ScenePhys** controllable physics video benchmark and authored diverse test clips
• Designed core figures and visualisations for experiments and ablations
• Built an LLM-as-a-Judge pipeline with rubric-based prompts and structured scoring for world-model comparison
• OpenReview | Project page

Automated Fault Diagnosis in IoT Systems through Semantic Analysis of Long-Form Textual Data

Internet of Things and Applications (IoT 2025)

Ali Mamanpoosh, Hossein Karshenas — *Publishing*

- **First author & pipeline lead**: designed an end-to-end hierarchical semantic-chunking and summarization pipeline that enables low–context-window LLMs to analyze large-scale IoT incident logs for automated fault diagnosis.
- Led an interdisciplinary effort at the intersection of NLP and IoT systems, applying large language models to long-form technical logs and maintenance reports and evaluating summary quality with an LLM-as-a-Judge protocol.

A Novel Solution for Enhancing Rail Transport Safety Using AI and Wearable Sensor Technology in Real-Time Train Operator Monitoring

4th International Conference on Innovation and Research in Engineering Sciences (ICIRES 2025)

Pouriya Heidary Velni, **Ali Mamanpoosh**, Mahmudreza Changizian

Published

• **Co-first author & AI lead**: proposed the drowsiness-detection concept and implemented a real-time YOLO/CNN pipeline for eye-closure–based fatigue monitoring in train operators
• Developed the end-to-end AI module that fuses camera streams with wearable vital-sign sensors, showcasing an interdisciplinary rail-transport safety system using modern deep learning

Research Experience

Research in soil health knowledge graphs using LLMs

Wageningen University and Research

Prof.dr Anna Fensel

Mar 2025 – Present

Built text-to-RDF conversion and validation pipelines for domain-specific soil-health knowledge graphs with LLMs.

Research in bilingual 3D visual reasoning (VLMs)

University of Isfahan

Prof. Afsaneh Fatemi

Aug 2025 – Nov 2025

Worked on vision–language models for 3D scene understanding and compositional reasoning in bilingual settings.

Research in physics-aware vision–language modeling

University of Isfahan

Prof. Afsaneh Fatemi

Jul 2025 – Sep 2025

Developed and evaluated physics-aware video models for world modeling and physically consistent scene understanding.

Research in differential privacy for RAG

University of Isfahan

Prof. Afsaneh Fatemi

Jul 2025 – Aug 2025

Designed a locally privacy-preserving gating mechanism for LLM-based retrieval-augmented generation systems.

Research in semantic analysis of long-form technical text

University of Isfahan

Dr. Hossein Karshenas

Feb 2023 – Sep 2025

Developed NLP methods for semantic analysis and fault diagnosis of IoT system logs and technical documents.

Research in computer vision for safety-critical systems

University of Isfahan

Dr. Mahmudreza Changizian

Nov 2024 – Mar 2025

Developed an AI-based monitoring system combining CNN-based fatigue detection and wearable vital-sign sensing for real-time train operator safety.

Research in computer vision engineering

Institute for Research in Fundamental Sciences (IPM)

Jul 2023 – Oct 2023

Designed an eye-tracking system to monitor monkey eye movements for task-related behavior and neuron activity.

Experience

Various clients

Remote

Freelance Machine Learning Engineer

Jan 2022 – Present

- Chatbots and custom tools for code and text processing.

BEHYAAR Co.

Isfahan, Iran

QML Programmer

Jul 2021 – Feb 2022

- Developed avionics PFD/MFD user interfaces in QML/C++.

Teaching Assistant (selected)

University of Isfahan

Isfahan, Iran

2022 – 2025

- **NLP & Speech** (2025), instructor: Dr. Hamidreza Baradaran.
- **Core CS courses** (2022–2024): Advanced Programming, AI, Automata/HCI; instructors incl. Dr. Mostafavi, Dr. Mahdavi, Dr. Noorbehbahani, Dr. Nirumand, Dr. Sharbaf.

Certificates & Selected Courses

- **Finetuning Large Language Models** (DeepLearning.AI)
- **LLMs Concepts** (DataCamp)
- **NLP with Classification and Vector Spaces**, **Advanced Learning Algorithms**, **Supervised ML: Regression & Classification** (DeepLearning.AI / Stanford)
- **Programming for Everybody**, **Python Data Structures** (University of Michigan)

Technical Skills

ML & LLM PyTorch, TensorFlow, scikit-learn, Keras, LangChain
Programming Python (Advanced), C++, C
Tools NumPy, Pandas, Matplotlib, PyQt, Django, QML

Volunteering

TEDx University of Isfahan

Head of Logistics (prev. Team Member) *Jul 2021 – Jan 2023 (Member: Jun 2020 – Jul 2021)*

- Led operations and logistics for large-scale campus events.

Languages

Persian Native
English Upper-Intermediate

Sports

Boxing *Apr 2024 – Present*

- Active training focused on strength, endurance, and discipline.

References

Hossein Karshenas
Artificial Intelligence Department, University of Isfahan hkarshenas1@gmail.com

Afsaneh Fatemi Khorasgani
Algorithms and Software Department, University of Isfahan afsaneh_fatemi@yahoo.com

Mohammadreza Sharbaf
Algorithms and Software Department, University of Isfahan m.sharbaf@eng.ui.ac.ir